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| EXAMINER | |
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| MOMPER, ANNA M | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/522,516 | MANFREDOTTI ET AL. | |
| | Examiner | Art Unit | |
| | ANNA MOMPER | 3657 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. Amendment to the claims and specification received 10/22/2008. The amendments overcome previously made objections from the office action mailed 8/05/2008. All previous objections to the specification and claims have been withdrawn.

2. Claims 1-11 have been amended.

3. Claims 12-20 have been added.

### *Response to Arguments*

4. Applicant's arguments, see Pg 13, filed 10/22/2008, with respect to the rejection(s) of claim(s) 1 under Ancrenaz (US 5,067,358) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ancrenaz (US 5,067,358) in view of Sato et al. (US 6,592,481 B2).

5. Applicant's arguments with regards to claim 2 have been fully considered but they are not persuasive. It has been agreed that Ancrenaz is silent with regard to the phase offset between the eccentric flyweight rotors disposed symmetrically facing each other about the axis of symmetry is equal to 2d/r. The applicant however argues that the phase offset being equal to 2d/r is not an inherent feature of Ancrenaz. The examiner respectfully disagrees.

It is pointed out that the claim in question, claim 2, recites a mathematical formula by which the invention operates and the argument of inherency is based on the argument that the prior art application (Ancrenaz) operates in the same manner such

that it would necessarily meet the mathematical formula without assuming, guessing or otherwise creating lengths or ratios that are not required or explicitly disclosed by the prior art application.

The applicant further argues that accidental results not intended and not appreciated do not constitute anticipation. The examiner points out that the manner in which the prior art device operates is not an "accidental result". The applicant further argues that Inherency may not be established by probabilities or possibilities and that occasional results are not inherent.

The applicant's invention involves a plurality of identical rotors, each having eccentric weights, the rotors being disposed about an axis of symmetry. Along the said axis of symmetry is a sliding mechanism upon which two rotors are mounted. And endless transmission means connects the rotors disposed about the axis of symmetry as well as the rotors disposed on the sliding mechanism. The claim in question, claim 2, cites the device has the relationship of the phase offset, $\varphi=2d/r$ wherein d is the linear displacement of the sliding mechanism and r is the winding radius of the rotors disposed about the axis of symmetry (the rotors having the eccentric weights).

The prior art (Ancrenaz) invention has a plurality of identical rotors having eccentric weights disposed along an axis of symmetry wherein on each lateral side of the of the plurality or rotors are pulleys connected to a sliding mechanism that moves parallel to the axis of symmetry (see arguments to claim 1 above concerning the sliding mechanism and the axis of symmetry, see also the new rejection of claim 1 of Ancrenaz (US 5,067,358) in view of Sato et al. (US 6,592,481 B2)). In the prior art invention, the

phase is adjusted by moving the sliding mechanism, which in turn slides the pulleys disposed on the lateral side of the plurality of rotors laterally by an amount equal to that which the sliding mechanism is sliding. Therefore when the sliding mechanism is slid by a distance of d, the two pulleys are also sliding in the same direction by an equal distance of d. As the pulleys shift by a distance of d the belt is also shifted. The amount that the belt shifts is equal to 2d since a distance of d is shifted along the top strand of the belt and a distance of d is shifted along a bottom strand of the belt, resulting in an overall shift of 2d for every shift of d of the sliding mechanism. The linear distance 2d corresponds to an angular measurement equal to the angular change or phase offset resulting therefrom. The angular measurement corresponding to the linear distance can be determined by taking the linear displacement of the belt (previously determined as being twice the displacement of the sliding mechanism) and dividing it by the radius of the rotor over which it will cause an angular change. This results in the relationship $\varphi=2d/r$.

It is once again stated that the result in question ($\varphi=2d/r$) will be necessarily met due to the behavior and set up of the prior art invention. It is further pointed out that the result is due to a mathematical formula derived based on the behavior and physical properties of the system of the applicant's invention and that the prior art (Ancrenaz) functions in the same manner which would result in the same derivation of the mathematical formula equal to the result in question.

Further, it is noted that the applicant's arguments have not addressed the specific rationale of the inherency statement provided in the last Action.

6. Applicant's arguments with respect to claim 5 have been considered but are moot in view of the new ground(s) of rejection. Claim 5 is rejected under Ancrenaz (US 5,067,358) in view of Sato et al. (6,592,481 B2). Sato et al. is being used to modify the anti-vibration device of Ancrenaz to include that the phase changing mechanism is disposed on the axis of symmetry and that said phase changing mechanism slides along said axis of symmetry to change the phase. This modification to Ancrenaz would result in the controllable moving equipment being located on the axis of symmetry between the sets of rotors and thus the motor which is supported by said controllable moving equipment via a carriage is also located on said axis of symmetry.

7. Applicant's arguments with regards to claim 8 have been fully considered but they are not persuasive. The applicant argues that the prior art (Ancrenaz) discloses "second moving equipment" and not a tensioning wheel. It is pointed out that the applicant's invention discloses two pulleys located on a sliding mechanism, one pulley being driven by a motor and the second pulley being dubbed a "tensioner pulley". This pulley is not disclosed to have any features that distinguish itself from a regular pulley such as a spring mechanism or hydraulics. This pulley, being mounted on the sliding mechanism and moving with said sliding mechanism is a tensioner pulley only in that as the sliding mechanism slides laterally, this pulley also slides laterally, pulling the belt accordingly to maintain tension by increasing or decreasing the belt length between the tensioning pulley and the rotors. The "second movable equipment" cited from the prior art in the rejection of claim 8 has not been identified as a tensioning pulley however is also mounted to the sliding mechanism such that it functions in the same manner as the

prior art, pulling the belt along according to the movement of the sliding mechanism resulting in maintained belt tension by increasing or decreasing the belt length between the "second moving equipment" and the rotors.

8. Applicant's arguments with regards to claim 9 have been fully considered but they are not persuasive. The applicant argues that the prior art (Ancrenaz) discloses the controllable moving equipment is arranged on "a chassis" and not on "the carter" that carries the sets of rotors and that the prior art does not disclose the two sets of rotors being carried by a frame on which the movable equipment is slidably mounted on. The examiner respectfully disagrees. The "carter" and "chassis" of the prior art form a frame upon which the sets of rotors and the sliding mechanism, therefore meeting the limitations of the claim.

9. Applicant's arguments with respect to claims 12 and 13 has been considered but are moot in view of the new ground(s) of rejection applied to claim 1.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-3, 5, 6, 8-15, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ancrenaz (US 5,067,358) in view of Sato et al. (US 6,592,481 B2).

As per Claim 1, Ancrenaz discloses an antivibration device comprising at least two sets each comprising

two identical rotors (52, 62; 72, 82) having respective eccentric flyweights (51, 61; 71, 81; Column 3, Lines 29-30), said sets being disposed symmetrically about an axis of symmetry (Figure 1, 51 and 61 are symmetrical to 71 and 81 about a horizontal axis of symmetry as viewed from Figure 1), and the axes of rotation of said rotors being parallel to one another and orthogonal to said axis of symmetry (Figure 1, axes of rotation being taken into the page as viewed from Figure 1),

and a drive system (15) for setting said rotors into rotation;

controllable moving equipment (17) carrying said drive system and capable of sliding (Figure 3, 15 moves in direction of arrows, corresponding to a direction into the page as viewed from Figure 2) to vary the phase offset between the eccentric flyweight rotors of the sets (Column 4, Lines17-24) ;

said drive system comprising a single motor (15) for rotating said rotors, having its axis disposed perpendicularly to said axis of symmetry (Figure 4A, Axis of the motors is into the page is perpendicular to the axis of symmetry which is horizontal as viewed from Figure 4A), and driving an endless connection (14) passing around said rotors

(Figure 3) so that the a plurality of the lengths of the strands of the connection passing through said sets are equal (Figure 3, Due to the symmetry, the length of the strand of the belt above the axis of symmetry will be equal to the length of the strand of the belt below the axis of symmetry).

Ancrenaz fails to explicitly disclose the controllable moving equipment sliding along an axis of symmetry.

Sato et al. discloses a setup for varying phase wherein four identical rotors (344) are disposed along an axis of symmetry and connected by a timing belt (320) and wherein the phase is adjusted by means of a frame (354) disposed on the axis of symmetry (Fig. 8) and slides along said axis of symmetry.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the antivibration device of Ancrenaz to include the controllable moving equipment sliding along an axis of symmetry, as taught by Sato et al., for the purpose of increasing control over the phase shifting.

As per claims 12 and 13, Sato et al. discloses the phase is adjusted by means of a frame (354) disposed on the axis of symmetry (Fig. 8) and slides along said axis of symmetry, the axis of symmetry being located between the sets of rotors (344). The modification of Ancrenaz to include the moving equipment, upon which the motor is mounted on, being disposed on the axis of symmetry and that moving equipment slides along said axis of symmetry to change the phase would thus result in the motor being located on the axis of symmetry which is between the two sets of rotors.

As per Claims 2 and 14, Ancrenaz is silent as to the phase offset between the eccentric flyweight rotors disposed symmetrically facing each other about the axis of symmetry is equal to 2d/r, where d corresponds to the linear displacement of said moving equipment along said axis of symmetry, and r corresponds to the identical winding radius of the endless connection about the centers of said rotors; however, the phase offset of 2d/r is an inherent feature of Ancrenaz (The phase offset is a direct result of the linear displacement of the moving equipment as both pulleys move distance d, increasing the belt length along one half of the system while decreasing it on the other. Each movement of d of the moving equipment results in a belt length increase or decrease of 2d due the portion of belt going into the pulley and the portion of belt coming out of the pulley, each being moved a distance of d, resulting in a total belt length change of 2d. The phase offset is a measurement of angle, measured in degrees or radians, and corresponds to an arc length. The distance that the moving equipment moves can be translated into a measurement corresponding to an angle via an equation for arc length, as evidenced by Bird (Engineering Mathematics, Pg 140; Equation 1, the equation for the phase offset is equivalent to that of arc length where theta is equivalent to the phase offset, r is the radius, and s is the arc length which is equivalent to the change in belt length, 2d) and therefore anticipates the applicant's claimed invention.

As per Claims 3, 11 and 15, Ancrenaz also discloses the linear displacement stroke of said moving equipment is defined by two extreme positions, a first position in which the phase offset between the eccentric flyweight rotors is zero, and a second position in which the phase offset is equal to 180° (Column 4, Lines 27-34, The

maximum force results when there is a phase difference of 0 degrees, meaning that the eccentric flyweight rotors are directly in phase with each other, creating constructive interference and the force from each eccentric flyweight rotor can be added together to create a maximum force. The zero force results when there is a phase difference of 180 degrees, meaning that the eccentric flyweight rotors are direction out of phase with each other, creating deconstructive interference and the force from the eccentric flyweight rotors cancel each other out, resulting in a force of zero).

As per Claims 5 and 17, Ancrenaz discloses the controllable moving equipment being a carriage (17) supporting the motor (Figure 2 shows a carriage, 17, supporting motor 15).

Sato et al. discloses the frame of the phase changing mechanism (322) being disposed along the axis of symmetry and sliding along said axis of symmetry.

As per Claims 6 and 18, Ancrenaz also discloses the endless connection is a belt (14) that winds around pulleys that are mounted on the axes of said rotors, and of said single motor (Column 3, Lines 58-62; Figure 3), which pulleys are contained in a common plane (Figure 2, shows a side view of all pulleys in a common plane as most closely noted by the number 14).

As per Claims 8 and 20, Ancrenaz also discloses the controllable moving equipment also includes at least one tensioning wheel (15') for tensioning said endless connection.

As per Claim 9, Ancrenaz also discloses the two sets are carried by a frame (13, 16) suitable for being secured to a vibrating structure (1), said controllable moving

equipment being slidably mounted on said frame to slide along the axis of symmetry of the two sets (13-15; Figure 3, motor moves in direction according to arrows, in the direction of the axis of symmetry which is horizontal as viewed from Figure 3).

As per Claim 10, Ancrenaz also discloses that for each set of rotors, it includes an intermediate rotary wheel (53, 73) co-operating with said endless connection to ensure that the two rotors are driven in contra-rotation, the two rotary wheels being arranged on said frame (13, 16) and being disposed respectively on either side of said axis of symmetry (Figure 3, the axis of symmetry is horizontal as viewed in Figure 3, and 53 and 73 or disposed on their respective sides of the axis of symmetry).

13. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ancrenaz in view of Sato et al., as applied to claims 1 and 13 above, and further in view of Garnjost et al. (US 5,903,077).

Modified Ancrenaz discloses all elements of the claimed invention, however fails to explicitly disclose at least one servo-motor for servo-controlling the position of said moving equipment, a plurality of sensors measuring the positions of said rotors for the purpose of calculating the phase offset between said sets, and a relationship for regulating and servo-controlling rotation of said single motor.

Garnjost et al. discloses a modular vibratory force generator in which comprises at least one servo- motor (13) for servo-controlling the position of said moving equipment (Column 3, Lines 65-66), a plurality of sensors (40, 40') measuring the positions of said rotors for the purpose of calculating the phase offset between said sets

and a relationship for regulating and servo-controlling rotation of said single motor (Column 4, Lines 56-59, 65-66, Column 5, Lines 9-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the antivibration device of Modified Ancrenaz to include at least one servo-motor for servo-controlling the position of said moving equipment, a plurality of sensors measuring the positions of said rotors for the purpose of calculating the phase offset between said sets, and a relationship for regulating and servo-controlling rotation of said single motor as taught by Garnjost et al. for the purpose of causing the frequency and phase of the resultant vibratory force to be identical to the frequency and phase of said control signal (Column 2, Lines 43-44).

14. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ancrenaz in view of Sato et al., as applied to claims 6 and 18 above, in view of Burgess, Jr. et al. (US 5,584,375).

Ancrenaz discloses the belt is a cog belt (Column 3, Lines 58-59) and co-operates with said pulleys.

Modified Ancrenaz is silent as to the pulley having teeth to co-operate with said cog belt.

Burgess, Jr. et al. discloses a single drive conveyor with vibrational motion altering phase control in which a belt (76) is a cog belt and co-operates with corresponding teeth formed on said pulleys (39, 40, 41, 42; Column 9, Lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the antivibration device of Modified Ancrenaz to include the belt is a

cog belt and co-operates with corresponding teeth formed on said pulleys as taught by Burgess, Jr. et al. for the purpose of accomplishing the driving function of the drive belt (Column 9, Line 43).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 6:00-3:30 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/
Primary Examiner, Art Unit 3657

am